IN THE UNITED STATES DISTRICT COURT FOR THE SOUTHERN DISTRICT OF IOWA CENTRAL DIVISION

KEMIN FOODS, L.C., THE CATHOLIC UNIVERSITY OF AMERICA,

Plaintiffs,

VS.

PIGMENTOS VEGETALES DEL CENTRO S.A. DE C.V.,

Defendant.

No. 4:02-cv-40327

ORDER ON POST-TRIAL MOTIONS

Currently pending before the Court are Defendant's Renewed Motion for Judgment as a Matter of Law (Clerk's No. 290), Plaintiffs' Renewed Motions for Judgment as a Matter of Law on Damages and Infringement of the '714 Patent (Clerk's Nos. 292, 293) and Plaintiffs' Motion for Judgment That the '714 Patent is Enforceable (Clerk's No. 291). Attorneys for Plaintiff are John F. Lynch, Susan K. Knoll, Scott W. Clark, Michelle Replogle and Ed Mansfield; attorneys for Defendant are G. Brian Pingel, Michael A. Dee, Camille L. Urban, and Adam Jones. Oral argument on these motions was held on December 21, 2004, with Mr. Lynch arguing for Plaintiff and Mr. Dee arguing for Defendant. The motions are now fully submitted and ready for ruling.

PROCEDURAL HISTORY

The Plaintiffs, Kemin Foods, L.C. ("Kemin"), and The Catholic University of America, filed an infringement action against the Defendant, Pigmentos Vegetales del Centro S.A. de C.V. ("PIVEG"), on July 9, 2002. The Complaint alleges infringement of two patents held by Kemin, U.S. Patent Nos. 5,382,714 ("the '714 patent") and 5,648,564 ("the '564 patent"), by PIVEG. In turn, PIVEG has alleged several counterclaims against Kemin relating to the patents-in-issue.¹

On January 13, 2004, the Court issued an Order on Claim Construction (Clerk's No. 120), construing the relevant claims from both the '714 patent and the '564 patent.² The Court amended this order on May 18, 2004, when it granted PIVEG's motion to alter or amend the order on claim construction in light of the Federal Circuit's decision reversing the preliminary injunction imposed by this Court (Clerk's No. 163).³ On August 27, 2004, the Court filed an order granting Plaintiffs'

¹ In an order filed May 9, 2003, granting a motion to bifurcate (Clerk's No. 71), the Court severed and stayed many of PIVEG's counterclaims pending the outcome of Kemin's infringement action.

² <u>See Kemin Foods, L.C. v. Pigmentos Vegetales del Centro S.A. de C.V.</u>, 301 F. Supp. 2d 970 (S.D. Iowa 2004) (hereinafter "<u>Kemin I</u>").

³ See Kemin Foods, L.C. v. Pigmentos Vegetales del Centro S.A. de C.V., 319 F. Supp. 2d 939 (S.D. Iowa 2004) (hereinafter "Kemin II").

motion to apply 35 U.S.C. § 295 (Clerk's No. 201), and on September 2, 2003, the Court filed an order denying the respective motions for summary judgment filed by the parties (Clerk's No. 208).⁴

BACKGROUND FACTS

Trial was held over ten days beginning September 13, 2004. During the proceedings and after all evidence was submitted, the parties orally moved for judgment as a matter of law on multiple grounds. The Court denied all of these motions. The jury then rendered a verdict finding neither of the patents invalid on the grounds claimed by PIVEG, finding no infringement, either literally or equivalently, of the '714 patent, while finding infringement of the '564 patent under the doctrine of equivalents. In addition, in response to special interrogatories in the verdict form, the jury rendered certain advisory findings on the issue of inequitable conduct.

ANALYSIS

A. Legal Standards for Judgment as a Matter of Law

The analysis is grounded in Rule 50, which provides,

If during a trial by jury a party has been fully heard on an issue and there is no legally sufficient evidentiary basis for a reasonable jury to find for that party on that issue, the court may determine the issue against that party and may grant a motion for judgment as a matter of law against that party with respect to a claim or defense that cannot under the

⁴ <u>See Kemin Foods, L.C. v. Pigmentos Vegetales del Centro S.A. de C.V.,</u> 2004 U.S. Dist. LEXIS 17737 (S.D. Iowa Sept. 2, 2004) (hereinafter "<u>Kemin III</u>").

controlling law be maintained or defeated without a favorable finding on that issue.

Fed. R. Civ. P. 50(a). After the case has been submitted to the jury to render a verdict, "[a] movant may renew its request for judgment as a matter of law" to determine whether the evidence reasonably supports the jury's verdict. Fed. R. Civ. P. 50(b).

A motion for judgment as a matter of law "is proper '[o]nly when there is a complete absence of probative facts to support the conclusion reached' so that no reasonable juror could have found for the nonmoving party." Shepard v. Wapello County, Iowa, 303 F. Supp. 2d 1004, 1006 (S.D. Iowa 2003) (quoting Henderson v. Simmons Foods, Inc., 217 F.3d 612, 615 (8th Cir. 2000) (quoting Hathaway v. Runyon, 132 F.3d 1214, 1220 (8th Cir. 1997))); see also Eich v. Bd. of Regents for Cent. Mo. State Univ., 350 F.3d 752, 761 (8th Cir. 2003) (quoting Hathaway, 132 F.3d at 1220); Jaros v. LodgeNet Entm't Corp., 294 F.3d 960, 965 (8th Cir. 2002); Sibia Neurosciences, Inc. v. Cadus Pharm. Corp., 225 F.3d 1349, 1355 (Fed. Cir. 2000). Thus, the Court must determine whether sufficient evidence exists to support the jury's verdict. Children's Broadcasting Corp. v. Walt Disney Co., 357 F.3d 860, 863 (8th Cir. 2004).

In applying this standard, the Court looks at all of the facts in the light most favorable to the nonmoving party. Shepard, 303 F. Supp. 2d at 1006 (citing Warren

v. Prejean, 301 F.3d 893, 900 (8th Cir. 2002)). "'[T]he court must assume as proven all facts that the nonmoving party's evidence tended to show, give [him] the benefit of all reasonable inferences, and assume that all conflicts in the evidence were resolved in [his] favor." Id. at 1006-07 (quoting Hathaway, 132 F.3d at 1220); see also Lawrence v. Bowersox, 297 F.3d 727, 731 (8th Cir. 2002). Thus, the movant must demonstrate that all the evidence points in its direction and "is susceptible to no reasonable interpretation sustaining" the nonmovant's claims. Shepard, 303 F. Supp. 2d at 1007 (quoting Ogden v. Wax Works, Inc., 214 F.3d 999, 1006 (8th Cir. 2000)); see Children's Broadcasting Corp., 357 F.3d at 863; Garcia v. City of Trenton, 348 F.3d 726, 727 (8th Cir. 2003). In addition, "the Court 'may not make credibility determinations or weigh evidence" in considering a motion for judgment as a matter of law. Shepard, 303 F. Supp. 2d at 1007 (quoting Garcia, 348 F.3d at 727); see also Reeves v. Sanderson Plumbing Prods., Inc., 530 U.S. 133, 150 (2000).

Thus, a party seeking to overturn a jury verdict must prove either that sufficient evidence does not exist from which a reasonable jury could return a verdict for the nonmoving party, or under the correct governing law, there could be but one reasonable conclusion as to the verdict. See Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 249-50 (1986). "A mere scintilla of evidence is inadequate to support a verdict,' and judgment as a matter of law is proper when the record contains no proof

beyond speculation to support the verdict." <u>Larson v. Miller</u>, 76 F.3d 1446, 1452 (8th Cir. 1996) (citations omitted).

Moreover, advisory verdicts are just that: advisory. Gragg v. City of Omaha, 20 F.3d 357, 358-59 (8th Cir. 1994) ("The district court was free to accept or reject the jury's advisory verdict in making its findings."); Harris v. Sec'y, U.S. Dep't of the Army, 119 F.3d 1313, 1320 (8th Cir. 1997) (same). However, "[a] finding of fact must stand unless [the movant] shows that on an entirety of the evidence of record, including that which detracts from the weight of the favorable evidence, and taking into account the required quantum of proof, no reasonable juror could have made the finding'." Juicy Whip, Inc. v. Orange Bang, Inc., 292 F.3d 728, 736 (Fed. Cir. 2002) (quoting Read Corp. v. Portec, Inc., 970 F.2d 816, 821 (Fed. Cir. 1992)).

B. Plaintiffs' Motions

Plaintiffs filed three post-trial motions, renewing their motion for judgment as a matter of law made at trial on multiple issues and filing an additional motion on an issue reserved to the Court to decide post-trial. Plaintiffs' first motion seeks judgment as a matter of law that the '714 patent is enforceable. This issue was not determined by the jury, though the jury was asked to render advisory findings on two elements of inequitable conduct. Plaintiffs' second motion requests judgment as a matter of law that PIVEG infringed the '714 patent. Finally, Plaintiffs' third motion seeks judgment

as a matter of law on the issues of damages for patent infringement and willful infringement.

1. Enforceability of the '714 Patent

The Court submitted special interrogatory questions to the jury as part of the verdict form. Specifically, the jurors were required to answer the following:

- 10. Do you find that PIVEG has proved, by clear and convincing evidence, that Kemin withheld information that was material during the application and prosecution of the '714 patent?
- 11. If Kemin did fail to disclose information to the PTO in conjunction with the '714 patent, do you find that PIVEG has proved by clear and convincing evidence that Kemin withheld the information with an intent to deceive the PTO?

Final Verdict Form. The jury answered "yes" to each of these questions. Kemin now moves for the Court to rule, despite the advisory findings of the jury, that Kemin did not fail to disclose material information with an intent to deceive, or if it did, that it was not so culpable as to render the '714 patent unenforceable.⁵ PIVEG, on the other hand, seeks a finding consistent with the jury's advisory findings and requests the Court find the '714 patent unenforceable due to inequitable conduct.

⁵ Alternatively, pursuant to Rule 52, Kemin asks the Court to rule as a factual matter that the '714 patent is enforceable.

Failure to disclose information material to patentability with intent to deceive the United States Patent and Trademark Office ("PTO") may constitute inequitable conduct, which may require the Court to find a patent unenforceable. Bristol-Myers Squibb Co. v. Rhone-Poulenc Rorer, Inc., 326 F.3d 1226, 1233 (Fed. Cir. 2003) (citing Molins PLC v. Textron, Inc., 48 F.3d 1172, 1178 (Fed. Cir. 1995)). "Inequitable conduct includes . . . failure to disclose material information . . . coupled with an intent to deceive." CFMT, Inc. v. CFM Technology, Inc., 349 F.3d 1333, 1340 (Fed. Cir. 2003) (quoting Molins PLC, 48 F.3d at 1178).

Individuals associated with the filing of a patent, including the inventor, prosecuting attorney or agent, and "[e]very other person . . . substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application," have a duty of candor and good faith in dealing with the patent office. 37 C.F.R. § 1.56(a), (c)). This duty of candor "includes a duty to disclose to the [PTO] all information known to that individual to be material to patentability as defined in this section." 37 C.F.R. § 1.56(a).

The breach of this duty may constitute inequitable conduct, thereby rendering the patent unenforceable. Smith Int'l, Inc. v. Hughes Tool Co., 759 F.2d 1572, 1578 (Fed. Cir. 1985). Thus, a finding of inequitable conduct requires (1) that the

withheld reference be material, (2) that there was an intent to deceive in withholding the reference, and (3) a balancing of the degree of materiality and intent in light of the public interest. N.V. Akzo v. E.I. Dupont de Nemours, 810 F.2d 1148, 1153 (Fed. Cir. 1987). Once the threshold issues of materiality and intent are found, the Court must conduct a balancing test between the levels of materiality and intent, with the ultimate determination of inequitable conduct within the discretion of the Court. Union Pac. Res. Co. v. Chesapeake Energy Corp., 236 F.3d 684, 693 (Fed. Cir. 2001).

Thus, in reviewing the jury's factual finding, the Court must determine whether substantial evidence exists that Kemin withheld information material to patentability with the intent to deceive or mislead the patent examiner. See Hupp v. Siroflex of America, Inc., 122 F.3d 1456, 1465 (Fed. Cir. 1997). "Substantial evidence is such relevant evidence from the record taken as a whole as might be accepted by a reasonable mind as adequate to support the finding under review." Juicy Whip, Inc., 292 F.3d at 736 (citations and quotations omitted).

a. Materiality

Information is material when it is not cumulative to information already of record and it establishes, by itself or in combination with other information, a *prima*

facie case of unpatentability of a claim.⁶ 37 C.F.R. § 1.56(b)(1). "There is no duty to submit information which is not material to the patentability of an existing claim." 37 C.F.R. § 1.56(a). Materiality is a question of fact, <u>Purdue Pharma L.P. v.</u>

Boehringer Ingelheim GMBH, 237 F.3d 1359, 1366 (Fed. Cir. 2001), that must be established by clear and convincing evidence. <u>Union Pac. Res. Co.</u>, 236 F.3d at 693.

"Materiality is not limited to prior art, but instead embraces *any* information that a reasonable examiner would be substantially likely to consider important in deciding whether to allow an application to issue as a patent." GFI, Inc. v. Franklin Corp., 265 F.3d 1268, 1274 (Fed. Cir. 2001) (citing Akron Polymer Container Corp. v. Exxel Container, Inc., 148 F.3d 1380, 1382 (Fed. Cir. 1998)). Similarly, materiality is not confined to matters reflected in the claims of a patent. Hoffman-La Roche, Inc., 323 F.3d at 1367. Thus, information may be material even though it does not ultimately render the patent claims invalid. Merck & Co. v. Danbury

⁶ The standard adopted by the Patent Office is not substantively different than the Federal Circuit's "reasonable examiner" standard. See <u>Ulead Sys., Inc. v. Lex Computer & Mgmt. Corp.</u>, 351 F.3d 1139, 1144-45 (Fed. Cir. 2003) (stating the new Patent Office rule does not establish a standard of inequitable conduct different from the Federal Circuit's traditional standard); see also <u>Hoffman La Roche, Inc. v. Promega Corp.</u>, 323 F.3d 1354, 1368 n.2 (Fed. Cir. 2001) (finding "the new standard was not intended to constitute a significant substantive break with the previous standard"). Thus, the Court references both the Patent Office standard and the Federal Circuit standard as culled from Federal Circuit jurisprudence in setting out the standards of materiality in an inequitable conduct claim.

Pharmacal, Inc., 873 F.2d 1418, 1420-21 (Fed. Cir. 1989); see also Molins PLC, 48 F.3d at 1179 (finding information is not "immaterial simply because the claims are eventually deemed by an examiner to be patentable thereover").

Referring to the '714 patent, PIVEG has consistently argued that a prior art reference, namely, Tyzkowski, Juliusz, et al., Research Note: Preparation of Purified Lutein and its Diesters from extracts of Marigold (Targetes erecta), 70 Poultry Science 651-54 (1991) ("the Poultry Science article") (Ex. 54),7 exceeds the threshold of materiality. The Poultry Science article was published more than three years prior to the filing date of the '714 patent, thereby qualifying as a prior art reference. See 35 U.S.C. § 102(b). It is also undisputed that Kemin did not disclose the article to the PTO in the application or prosecution of the '714 patent.

Kemin's first argument against the materiality of the *Poultry Science* article is that it discloses the use of toluene and therefore cannot satisfy the "no traces of toxic chemicals" limitation of claim 1 of the '714 patent. (Tr. 362:2-8; 901:21-902:3; 9112:5-12; 1015:13-17; 1015:22-1016:10.) Because the article's method does not provide a means for removing the toluene, Kemin contends the article describes a

⁷ All references are to the trial transcript and exhibits admitted at trial.

different material than that claimed in its patent. (Tr. 362:9-14; 362:15-363:6; 365:15-367:20; 166:6-19; 168:11-20; 227:6-14.)

Kemin next contends the *Poultry Science* article fails to satisfy the "lutein greater than about 90% pure" claim limitation. This argument is based primarily on the testimony that the *Poultry Science* process did not work in the manner prescribed to produce the level of purity disclosed. (Tr. 353:3-354:10; 355:15-20; 355:25-358:14; 167:3-25.)

Kemin further argues that no reasonable juror could conclude the *Poultry Science* article is material to the patentability of the '714 patent on the trial record, as it was not a commercially viable way to make nutraceutical grade lutein. (Tr. 912:24-913:1; 912:2-4; 1013:8-11.) The inventor of the "714 patent and Kemin's expert found the article did not meet the requirements of the '714 patent. (Tr. 164:22-165:3; 370:13-17.)

PIVEG argues the materiality of the *Poultry Science* article has already been determined by the Federal Circuit when it stated the article is "*prima facie* material to patentability." Kemin Foods, L.C. v. Pigmentos Vegetales del Centro S.A. DE C.V., 93 Fed. Appx. 225, 234 (Fed. Cir. 2004). Kemin was aware of the *Poultry Science* article and had experimented with the disclosed method and collaborated with the author for years.

PIVEG reiterates the Federal Circuit finding that "the materiality of the [*Poultry Science*] article is not negated by the fact that the method disclosed therein may have required some modification in order to be operative." <u>Id.</u> The article discloses a composition of purified lutein of 99.2% purity by HPLC. (Ex. 54.) The article further discloses the composition has less than 1% other carotenoids and gives no indication the process results in traces of toxic chemicals. (Ex. 54.) According to PIVEG, even the use of toluene does not defeat this last limitation as toluene is present in bottled drinking water. Based on the composition as disclosed, PIVEG contends the *Poultry Science* article is highly material to the '714 patent.

The Court finds sufficient evidence exists in the record to support the jury determination that the *Poultry Science* article was material to the patentability of the '714 patent. Although the article does not discuss the presence of toxic chemicals, the Court finds the composition disclosed does meet each of the limitations claimed in the '714 patent. Indeed, one of the stated purposes of the '714 patent was to find an analytical standard, which was precisely the goal of the research and result disclosed in the *Poultry Science* article. In short, the Court finds there is substantial evidence that a reasonable patent examiner would have considered the *Poultry Science* article important.

b. Intent

Materiality does not, however, presume intent, <u>GFI, Inc.</u>, 265 F.3d at 1274, as materiality and intent are separate and essential components of inequitable conduct. <u>Manville Sales Corp. v. Paramount Sys., Inc.</u>, 917 F.2d 544, 552 (Fed. Cir. 1990) (citations omitted). Thus, the determination of whether the threshold issue of intent is established is a separate inquiry. <u>See Upjohn Co. v. Mova Pharm. Corp.</u>, 225 F.3d 1306, 1312 (Fed. Cir. 2000) (citations omitted).

Intent is also a question of fact that must be established by clear and convincing evidence. See Purdue Pharma L.P., 237 F.3d at 1366. It is improper to infer an intent to deceive from the mere fact that some material information was not disclosed, Union Pac. Res. Co., 236 F.3d at 694, as "knowledge alone is not culpable intent."

Allen Organ Co. v. Kimball Int'l, Inc., 839 F.2d 1556, 1568 (Fed. Cir. 1988). In other words, there must be a factual basis for finding deceptive intent on the part of an applicant or his representative, Union Pac. Res. Co., 236 F.3d at 694 (quoting Hebert v. Lisle Corp., 99 F.3d 1109, 1116 (Fed. Cir. 1996)), even if the applicant may have known of the reference. See Braun, Inc. v. Dynamics Corp. of America, 975 F.2d 815, 822 (Fed. Cir. 1992); see also Hupp, 122 F.3d at 1465-66 (finding that knowledge of a withheld reference does not necessarily establish that it was culpably withheld).

Indeed, inequitable conduct requires intent to mislead or deceive, not just intent to withhold. See Dayco Prods., Inc. v. Total Containment, Inc., 329 F.3d 1358, 1362-63 (Fed. Cir. 2003). "In a case involving nondisclosure of information, clear and convincing evidence must show that the applicant made a *deliberate decision* to withhold a known material reference." Molins PLC, 48 F.3d at 1181 (emphasis added); see also Northern Telecom, Inc. v. Datapoint, 908 F.2d 931, 939 (Fed. Cir. 1990) ("Given the ease with which a relatively routine act of patent prosecution can be portrayed as intended to mislead or deceive, clear and convincing evidence of conduct sufficient to support an inference of culpable intent is required."). Thus, "a finding of culpable intent requires evidentiary support, for 'the involved conduct viewed in light of all the evidence, including evidence indicative of good faith, must indicate sufficient culpability to require a finding of intent to deceive." Hupp, 122 F.3d 867, 876 (Fed. Cir. 1988) (quoting Kingsdown Med. Consultants, Ltd. v. Hollister, Inc., 863 F.2d 867, 876 (Fed. Cir. 1988)).

However, because direct proof of wrongful intent is rare in inequitable conduct cases, intent is primarily "proven by inferences drawn from facts, with the collection of inferences permitting a confident judgment that deceit has occurred." <u>GFI, Inc.</u>, 265 F.3d at 1274. In other words, "intent may be inferred where a patent applicant knew, or should have known, that withheld information could be material to the PTO's consideration." <u>Brasseler, U.S.A. I, L.P. v. Stryker Sales Corp.</u>, 267 F.3d

1370, 1375-76 (Fed. Cir. 2001); see also Elk Corp. v. GAF Bldg. Materials Corp., 168 F.3d 28, 31 (Fed. Cir. 1998) (upholding finding of intent where patent applicant knew of the material prior art, withheld the prior art, and there was a strong likelihood that the applicant knew of the materiality of the withheld prior art).

This standard requires the individual to both recognize the significance of the article and know of the duty to disclose. Rhone-Poulenc Rorer, Inc., 326 F.3d at 1239. In such situations, subjective good faith will rarely be sufficient to overcome the inference of intent to mislead. Id.; see, e.g., id. at 1240 (inferring intent to mislead based on failure to disclose a prior art patent with which the applicant was intimately familiar); Critikon, Inc. v. Becton Dickinson Vascular Access Inc., 120 F.3d 1253, 1256 (Fed. Cir. 1997) (same).

The law requires patent applicants and their assignees to disclose any and all potential conflicts to the examiner and "not to unilaterally make a determination that [the reference] was not prior art." GFI, Inc., 265 F.3d at 1274. "It is axiomatic that '[c]lose cases should be resolved by disclosure, not unilaterally by applicant." Critikon, Inc., 120 F.3d at 1257 (quoting LaBounty Mfg., Inc. v. United States Int'l Trade Comm'n, 958 F.2d 1066, 1076 (Fed. Cir. 1992)). In addition, while establishing subjective good faith may prevent the inference of intent, "[a] mere denial of intent to mislead . . . will not suffice." Critikon, Inc., 120 F.3d at 1257 (citing FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1415 (Fed. Cir. 1987)).

Ignorance of the law is no defense for withholding material prior art. See Brasseler, 267 F.3d at 1385 ("We reiterate that inventors represented by counsel are presumed to know the law.").8 Also, intent may be inferred based upon failure to disclose a prior art patent with which the applicant was intimately familiar. Rhone-Poulenc Rorer, Inc., 326 F.3d at 1239-40. However, "[i]t is not inequitable conduct to omit telling the patent examiner information that the applicant in good faith believes is not material to patentability." Allied Colloids, Inc. v. American Cyanamid Co., 64 F.3d 1570, 1578 (Fed. Cir. 1995). Moreover, "finding that particular conduct amounts to 'gross negligence' does not of itself justify an inference of intent to deceive." Kingsdown Med. Consultants, Ltd., 863 F.2d at 876.

Kemin contends that PIVEG presented no evidence at trial that Dr. Nelson had an existing intent to deceive the Patent Office.⁹ According to Kemin, the evidence points to the opposite conclusion based on Dr. Nelson's testimony that he believed the *Poultry Science* article was not material to patentability of the '714 patent. (Tr. 245:1-9; 323:16-20.) This belief was based primarily on the lack of successful tests

⁸ Kemin was represented by counsel when it made the '714 patent application.

⁹ The testimony is unequivocal that the patent inventor, Dr. Khachik, had no intent to deceive the Patent Office, as he was unaware of the *Poultry Science* article until *after* the '714 patent was issued. (Tr. 164:13-21.)

run by Kemin researchers using the *Poultry Science* method.¹⁰ In addition, the '714 patent was sought years after any testing of the *Poultry Science* method had been abandoned by Kemin researchers.

Kemin next reasserts that no substantial evidence exists that Dr. Nelson was substantively involved in the prosecution of the '714 patent. Kemin contends Dr. Nelson did not fall within the group of individuals to whom the duty of candor applies. See 37 C.F.R. § 1.56(c)). According to Kemin, the trial testimony confirmed that Dr. Nelson had no substantive involvement with the prosecution of the '714 patent beyond merely coordinating the filing. (Tr. 292:16-20; 282:24-293:8.) See, e.g., Schreiber Foods, Inc. v. Beatrice Cheese, Inc., 92 F. Supp. 2d 857, 872 (E.D. Wis. 2000) ("No conclusive evidence was proffered at trial that plaintiff's executives were substantively involved in the preparation or prosecution of the applications."), rev'd on other grounds, 31 Fed. Appx. 727 (Fed. Cir. 2002). Kemin asserts that the duty to disclose did not attach to Dr. Nelson for fulfilling this typical administrative responsibility.

While former employee Hannasch did achieve relatively pure lutein from one run with the *Poultry Science* method, she was unable to repeat this result on a consistent basis, and the actual product from the article's method was a waxy, sludgy residue and not the crystallization Kemin sought. (Tr. 956:23-957:8; 962:24-963:5; 960:4-9.) In addition, while PIVEG's Jose Pichardo testified he got the *Poultry Science* method to work, he did so only upon altering the method disclosed (Tr. 912:2-7), though Dr. Pichardo could not recall what modifications were made and kept no records supporting his claims. (Tr. 904:1-23.)

PIVEG contends there is sufficient evidence of Kemin's intent to deceive the Patent Office by failing to disclose the *Poultry Science* article. Kay Hannasch, a former Kemin employee, contradicted Dr. Nelson by testifying she experimented with the *Poultry Science* method and it worked, (compare Tr. 953:5-8; 954:11-25 with Tr. 227:24-228:1), and that Dr. Nelson was aware of her success. (Tr. 955:1-2.) This is a result supported also by the claimed, though shrouded, research of PIVEG's Jose Pichardo. (Tr. 912:2-7.) Dr. Nelson's excuse that he did not disclose the article because it was directed toward animal feed was inconsistent with the disclosures of other prior art in the '714 patent. (See Ex. AL-AT.) Also, Kemin's own expert admitted toluene is allowed in drinking water, and thus its presence does not necessarily render something unsuitable for human consumption. (Compare Tr. 226:12-13 with 226:12-17.)

In short, PIVEG asserts that Kemin could not corroborate with documentation or other evidence any of Dr. Nelson's stated reasons for withholding disclosure of the *Poultry Science* article. (See also Tr. 243:11-19; 264:16-21.) Paragon Podiatry Lab., Inc. v. KLM Labs., Inc., 984 F.2d 1182, 1193 (Fed. Cir. 1993) (finding "inconsistent justifications do not raise a genuine issue of good faith"); Elk Corp. v. GAF Bldg. Materials Corp., No. 3:94-CV-0249-P, at 19 (N.D. Tex. Oct. 10, 1997) (finding applicant's reasons for withholding material prior art "not credible nor objectively

reasonable"). In addition, PIVEG points out that Kemin disclosed the article in subsequent patent applications. (Ex. B, col 1, ll. 62-65.)

PIVEG also asserts that Dr. Nelson was "substantively involved in the preparation or prosecution of" the '714 patent application, 37 C.F.R. § 1.56(c))(3), such that he had an affirmative duty to disclose. According to the evidence at trial, Dr. Nelson was Kemin's president at the time of the '714 patent prosecution (Tr. 213:24-215:1), is qualified in the science of the patent-in-suit (Tr. 212:19-23), and negotiated with the '714 patent inventor to prosecute, obtain, and license the patent. (Tr. 232:20-233:22; Ex. 8.) In short, Dr. Nelson had final authority over the patent, and those participating in the prosecution thereof reported directly to him. (Tr. 271:2-25.)

PIVEG concludes by asserting that sufficient evidence exists to concur with the jury finding that Kemin had an intent to deceive the Patent Office by its failure to disclose the *Poultry Science* article. According to PIVEG, Dr. Nelson had a duty to disclose, which he breached by not telling the prosecuting attorneys about the reference despite his intimate knowledge of the article. (Tr. 323:21-22.)¹¹ PIVEG asserts

¹¹ The fact that a patent applicant fails to disclose material to his attorneys does not avoid a finding of inequitable conduct under the theory that the patentees could not have known the withheld information was material absent the assistance of their attorneys, and the attorneys could not have known to investigate the withheld information without the patentees' full disclosure. <u>Brasseler</u>, 267 F.3d at 1380.

this decision violated the duty to disclose and is evidence of Dr. Nelson's intent to deceive.

While the jury entered an advisory finding that Kemin had an intent to deceive in withholding material information, the Court finds this conclusion tenuous. Ultimately, the jury must have determined that Dr. Nelson was substantively involved in the patent prosecution due to his position as president of the company and overseer of the patent acquisition process. The jury must have also determined Dr. Nelson knew, or should have known, of the materiality of the *Poultry Science* article and disregarded that materiality in failing to disclose its existence to his agents charged with the prosecution of the '714 patent. The Court is satisfied that on this record a reasonable juror, seeking to answer the absolute question of whether Kemin did or did not have an intent to deceive, could reach the affirmative conclusion. This is true though a review of the totality of the existing circumstances suggests the conclusion is reached on a shallow basis.

c. Balancing of Materiality and Intent

The analysis on the issue of inequitable conduct does not end there, however. If the threshold levels of both materiality and an intent to deceive are established, the Court must still weigh the degree of materiality and the degree to which intent has been established to determine, in light of all the circumstances, whether the applicant's conduct was so culpable that the patent should be held unenforceable. <u>GFI, Inc.</u>, 265

F.3d at 1273; see also <u>Dayco Prods.</u>, Inc., 329 F.3d at 1362-63; <u>Bd. of Educ. v.</u> <u>American Bioscience, Inc.</u>, 333 F.3d 1330, 1343 (Fed. Cir. 2003).

The Court must examine the inverse relationship between the level of the materiality of the omitted or withheld information and the patent applicant's intent in inequitable conduct cases. GFI, Inc., 265 F.3d at 1273 (quoting Halliburton Co. v. Schlumberger Tech. Corp., 925 F.2d 1435, 1439 (Fed. Cir. 1991)). In other words, the more probative the information and the more intimately the individual is associated with the information, the lower the level of intent to deceive required. Id. ("The more material the omission, the less culpable the intent required.") (citations omitted). The Court also considers evidence of Kemin's good faith in determining whether PIVEG has shown inequitable conduct by clear and convincing evidence. Baxter Int'l, Inc. v. McGaw, Inc., 149 F.3d 1321, 1330 (Fed. Cir. 1998) (citing Kingsdown Med. Consultants, Ltd., 863 F.2d at 876.

The burden of proving inequitable conduct which must result in a restriction on the enforceability of a patent is high. See Monsanto v. Bayer Bioscience N.V., 363 F.3d 1235, 1240 (Fed. Cir. 2004) (citing Paragon Podiatry Lab., Inc., 984 F.2d at 1190); see also KangaROOS U.S.A., Inc. v. Caldor, Inc., 778 F.2d 1571, 1576, 1577 (Fed. Cir. 1985) (quoting in addition, Poller v. Columbia Broadcasting Sys., Inc., 368 U.S. 464, 473 (1962) ("[S]ummary procedures should be used sparingly . . . where motive and intent play leading roles . . .")). Even if materiality and intent are

established, the Court may ultimately conclude the culpability insufficient to warrant finding the patent unenforceable. See, e.g., Duro-Last, Inc. v. Custom Seal, Inc., 321 F.3d 1098, 1110 (Fed. Cir. 2003).¹²

This Court ultimately concludes the levels of materiality and intent are not so high as to warrant a finding of culpable intent such that the '714 patent should be held unenforceable. While the *Poultry Science* article is obviously material, it is not "highly" material to the '714 patent, as there is little persuasive record evidence the method disclosed actually produces the composition disclosed. While the information need not necessarily be enabled, the ability to duplicate the information disclosed is relevant to the level of materiality attached to that information. To find otherwise would allow even dubious claims of inconceivable results to cloud valid research and the resulting patents. The Court must find the article material under the legal standards, as an examiner should have been provided with the information, but is

¹² In <u>Duro-Last</u>, the district court submitted the underlying factual inquiries of materiality and intent to the jury, which found that the patent applicant failed to disclose material information with an intent to deceive. <u>Duro-Last, Inc.</u>, 321 F.3d at 1110. The court went on to decide the material was "marginally relevant" and that the patent applicant acted with "little or no intent to deceive." <u>Id.</u>

The district court's determination was upheld on appeal, as the Federal Circuit found the ruling was not an abuse of discretion as the district court was not required to accept the jury findings, and there was sufficient evidence to support the court's ruling. Id. In addition, the Federal Circuit recognized that the district court's decision was not necessarily inconsistent with the jury findings, as the verdict form in <u>Duro-Last</u> did not indicate the levels of materiality and intent found by the jury. <u>Id.</u>

unpersuaded disclosure of the article would have had any significant impact on the '714 patent.

In addition, while the Court concluded there exists minimally sufficient evidence to support the jury's finding of intent, the Court assigns very low weight to the level of intent engendered by Kemin, and Dr. Nelson in particular. Dr. Nelson was involved in the prosecution of the patent as a function of his administrative oversight, but his participation was limited to that role. The Court finds Dr. Nelson's stated subjective belief that the *Poultry Science* article was not material is not seriously undermined by other evidence, especially considering the timing of his interaction with the method disclosed in the article and when the actual prosecution of the '714 patent took place.¹³ While it may be regarded as careless or unwise, the Court has not been convinced the failure to provide the *Poultry Science* article was the result of a deceitful motive.

Based on these findings, the Court has weighed the appropriate degrees of materiality and intent to deceive and holds that a finding of inequitable conduct is not warranted. Kemin did not exhibit the culpable intent required to effectively render the '714 patent unenforceable. Accordingly, the Court holds as a matter of law under the facts and circumstances of this case that the '714 patent is enforceable.

¹³ Over two years passed between the termination of any Kemin research into the *Poultry Science* method and the prosecution of the '714 patent.

2. Infringement of the '714 Patent

In a prior order in this case, the Court has previously discussed the legal standards in a patent infringement action. See Kemin III, 2004 U.S. Dist. LEXIS 17737, at *63-67 and *74-76. To prove literal infringement, Kemin must establish that each element of the asserted claims is present in PIVEG's purified lutein products. See Karlin Technology, Inc. v. Surgical Dynamics, Inc., 177 F.3d 968, 974-75 (Fed. Cir. 1999). Conversely, PIVEG need only demonstrate that one of the limitations is not met to avoid a finding of infringement. Kustom Signals, Inc. v. Applied Concepts, Inc., 264 F.3d 1326, 1333 (Fed. Cir. 2001) (citing Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, 29 (1997)).

In bringing this action, Kemin asserted PIVEG infringed certain claims of the '714 patent. The asserted claims, Claims 1, 2, and 4 of the '714 patent, read,

1. The carotenoid composition consisting essentially of substantially pure lutein crystals derived from plant extracts that contain lutein, said lutein crystals being of the formula:

(chemical compound formula given)

wherein the lutein is substantially free from other carotenoids and chemical impurities found in the natural form of lutein in the plant extract.

2. The lutein carotenoid composition of claim 1 wherein the plant extract is derived from naturally occurring plants selected from the group consisting of fruits, vegetables and marigolds.

4. The lutein carotenoid composition of claim 1 wherein the lutein is derived from marigold flower extract.

'714 Patent, col. 8, 11. 65-col. 9, 11.16, col.9, 11. 19-22.

The Court construed these claims in its January 13, 2004, Order on Claim Construction¹⁴ and in its May 18, 2003, Supplemental Order on Claim Construction.¹⁵

Based on the final claim construction, at trial the Court instructed the jury as follows:

The composition covered in claim 1 consists of lutein greater than about 90% pure, having significantly less than 10% of other carotenoids, and no traces of toxic chemicals. Lutein purity is to be measured as related to the carotenoid composition and is determined by UV/visible spectrophotometry in conjunction with HPLC.

The phrase "plant extract" as used in claim 2 of the '714 patent has its plain meaning which is the plant extract of claim 1 is derived from naturally occurring plants selected from the group consisting of fruits, vegetables, and marigolds. The plain meaning of claim 4 of the '714 patent provides that the lutein of claim 1 of the '714 patent is derived from marigold flower extract.

Final Jury Instruction No. 15, Limitations of the Claims at Issue. Kemin contends that PIVEG's lutein products infringe the asserted claims of the '714 patent even though the jury found otherwise.

¹⁴ See Kemin I, 301 F. Supp. 2d at 983-89.

¹⁵ See Kemin II, 319 F. Supp. 2d at 943.

a. Literal Infringement

The first limitation of claim 1 of the '714 patent is that the lutein product consists of lutein greater than about 90% pure. While the method of measurement was a point of controversy, as was the difference between "trans-lutein" and "cislutein", 16 both sides presented abundant documentary and testimonial evidence on this issue.

Kemin asserts that the evidence adduced at trial proves PIVEG's products fulfill this limitation. In the present motion, Kemin relies heavily on the testimony of its expert, Dr. Larock, as he determined that PIVEG's products are greater than about 90% pure lutein. (Tr. 333:12-20; Tr. 228:30-339:25.) Dr. Larock based his determination on analyses of PIVEG's lutein products, the documentation of which was entered into evidence. (See Ex. 10, 19, 38, K, BZ.) Kemin further asserts that testimony elicited by PIVEG from its own witnesses demonstrates this limitation is met. (Tr. 979:24-980:4; 788:2-4.) According to Kemin, this evidence, coupled with the lack of contrary evidence presented by PIVEG, demonstrates the complete absence of probative facts that would support a jury determination that PIVEG's products do not meet the first limitation of claim 1. (Tr. 392:5-12.)

¹⁶ This issue arose for the first time during trial.

Kemin next asserts PIVEG's products meet the second limitation, i.e., have significantly less than 10% other carotenoids. Again, the testimony of Dr. Larock (Tr. 394:10-21; 351:3-19; 397:4-398:4) and the documented analyses (Ex. 10, 19, 38, K, J, BZ) form the basis for Kemin's post-trial arguments. In addition, PIVEG's expert was somewhat ambiguous on this point at times during his testimony. (Tr. 980:11-19; 984:20-25.) Kemin explains that PIVEG's arguments to the contrary are flawed because its manner of determining other carotenoids fails to account for any margin of error associated with HPLC measurements (Tr. 397:4-23; 980:20-25), or that the unspecified carotenoids could be other forms of lutein. (Tr. 336:14-337:1.) Kemin concludes that this evidence establishes the second limitation of claim 1 is literally met by PIVEG's products, and there is no legally sufficient evidence to the contrary.

The third limitation of claim 1 of the '714 patent is that the product contain no traces of toxic chemicals. The issue with regard to this limitation surrounded the exact meaning of this limitation. Kemin argued that whether a chemical is toxic depends on the dose, as testified to by both Kemin's and PIVEG's expert (Tr. 332:17-19; 997:11-13; 1000:21-1001:17), and that under FDA standards PIVEG's products contained no traces of toxic chemicals. (Tr. 160:24-161:18; 348:20-349:20; 385:23-386:5; 999:3-10; Ex. V; 63.) Indeed, the evidence indicates the '714 patent inventor, Dr. Khachik, used the FDA regulations for determining there were no traces of toxic chemicals.

(Tr. 159:2-160:2.) Kemin further points out that PIVEG's process does not call for any toxic chemicals (Tr. 383:22-384:4), and thus the evidence establishes the third limitation of claim 1 is met.

Accordingly, Kemin's expert, Dr. Larock, concluded that PIVEG's product infringes all of the limitations of claim 1 of the '714 patent. (Tr. 347:12-18.) In addition, it is undisputed that PIVEG's products literally meet the limitations of claims 2 and 4 of the '714 patent. (Tr. 337:2-14; 338:7-11.) Kemin now requests the Court grant its motion for judgment as a matter of law on the issue of infringement of the '714 patent despite the jury verdict to the contrary.

PIVEG, on the other hand, argues that it presented more than enough evidence to demonstrate that its products do not meet any, let alone all three, of the limitations of claim 1 of the '714 patent. Specifically, PIVEG asserts the evidence adduced at trial clearly indicates PIVEG's products do not have about 90% or greater lutein purity. (Tr. 989-991; 992:4-18; Ex. I; J.) PIVEG next indicates the evidence supports a verdict that PIVEG's products do not contain significantly less than 10% other carotenoids. (Tr. 985:24-25; 992:7-18; Ex. I; J; K.) PIVEG further argues that, even using the carotenoid determinations used by Dr. Larock, the jury could have

reached a different conclusion as to whether this limitation was met.¹⁷ Finally, PIVEG contends there was sufficient evidence for the jury to find the no traces limitation did not allow for any detectable level of toxic chemicals, especially since there is no mention of FDA regulatory standards in the '714 patent specification or claims. (Tr. 993:15-25; 1011:5-23; Ex. A.)

Having weighed the evidence, and having made judgments of what evidence was or was not credible, the jury found Kemin did not prove PIVEG's products literally infringed the '714 patent. The standard is high to annul a jury verdict, and the Court finds insufficient evidence to warrant such a result on the present motion. The Court finds more than sufficient evidence was before the jury upon which a reasonable person could find PIVEG did not literally infringe Kemin's '714 patent.

b. Doctrine of Equivalents

Even if there is no direct infringement, Kemin contends that PIVEG's lutein products infringe the '714 patent under the doctrine of equivalents. A doctrine of equivalents analysis requires the Court to determine whether or not the allegedly infringing product performs substantially the same function, in substantially the same

¹⁷ In other words, while Dr. Larock opines that 6-8% other carotenoids was significantly less than 10%, the jury could reasonably find that it was not *significantly* less given other trial testimony related to the amount of purity of the starting material.

way, to obtain substantially the same result as the claimed invention. <u>Dawn Equip.</u>

<u>Co. v. Kentucky Farms Inc.</u>, 140 F.3d 1009, 1016 (Fed. Cir. 1998). Under this doctrine, the Court assesses whether the differences between the accused process and the claimed invention are insubstantial. <u>Digital Biometrics, Inc. v. Identix, Inc.</u>, 149 F.3d 1335, 1349 (Fed. Cir. 1998).

Kemin again relies on the testimony of Dr. Larock, who testified that in his opinion "all of the materials are essentially the same." (Tr. 351:20-352:12.) Specifically, with respect to the third limitation of claim 1, Kemin contends that although PIVEG's products contain some residual chemicals, i.e., hexane, it is at such low levels it is not considered toxic. (Tr. 351:20-352:12; 160:24-161:18.) Thus, to the extent the limitations of claim 1 are not literally met by PIVEG's products, Kemin argues the evidence establishes they are met at least equivalently and there is no legally sufficient evidence supporting the jury's finding otherwise.

PIVEG counters by arguing that reasonable jurors could find that it did not infringe the '714 patent under the doctrine of equivalents. PIVEG contends that the jury could have reached this determination based on the parameters established by the prior art. In other words, PIVEG asserts that the jury cannot expand the limitations of the '714 patent so broadly as to make prior art anticipate the equivalent of that claim. The *Poultry Science* article again plays a central role in this argument, as

PIVEG argues the jury could find that this article, combined with the language of the '714 patent, proves the patent does not allow residual solvents to be present in any detectable levels. (Tr. 362:15-25; 363:1-6; 1011:5-23; Ex. A; E; 223.)

Again, the jury expressly found Kemin did not prove PIVEG's products infringed the '714 patent under the doctrine of equivalents. The Court again finds more than sufficient evidence was before the jury upon which a reasonable person could find Kemin did not sustain the burden of proving infringement of the '714 patent. Therefore, the Court must deny Kemin's motion for judgment as a matter of law on infringement of the '714 patent.

3. Damages for Patent Infringement

In its third post-trial motion for judgment as a matter of law, Kemin contends that it is entitled to a damages award greater than that arrived at by the jury. Kemin also asserts that it is entitled to enhanced damages because the evidence clearly proves willful infringement by PIVEG. Finally, Kemin argues this is an exceptional case entitling Kemin to an award of reasonable attorneys' fees.

In its resistance, PIVEG initially asserts that Kemin did not move for judgment as a matter of law on the issues of insufficient damages and willful infringement during trial, thereby precluding a post-trial motion on these issues. PIVEG then proceeds to argue that, regardless of Kemin's failure to raise these issues during trial, there is

sufficient evidence to sustain the jury's verdict on willful infringement and the amount of damages awarded. PIVEG also argues that damages in any amount are improper.

a. Procedural Issues

The Federal Rules require that a party must have first moved for judgment as a matter of law during trial in order to file a renewed motion for judgment as a matter of law following the trial. Fed. R. Civ. P. 50(b); Hubbard v. White, 755 F.2d 692, 695-96 (8th Cir. 1985). Where this prerequisite is not satisfied, a party cannot raise the issues in question either before the district court in a post-trial motion for judgment as a matter of law or on appeal. Hubbard, 755 F.2d at 696. Courts have, however, recognized several exceptions that allow courts to hear the merits of a Rule 50(b) motion even if the moving party fails to present a timely motion under Rule 50(a).

See BE&K Constr. Co. v. United Bhd. of Carpenters & Joiners of America, 90 F.3d 1318, 1325 (8th Cir. 1996); Pulla v. Amoco Oil Co., 72 F.3d 648, 655 (8th Cir. 1995).

PIVEG contends that Kemin's failure to seek judgment as a matter of law on the issues of willful infringement and damages during trial now precludes it from raising them in a post-trial motion for judgment as a matter of law. See Noblepharma Ab v. Implant Innovations, Inc., 930 F. Supp. 1241, 1249 (N.D. Ill. 1996). Meanwhile, Kemin urges the Court to consider Kemin's motion on the merits under one of several exceptions to the procedural requirements of Rule 50(b).

Kemin argues first that the Court should consider its argument that there was insufficient evidence to support the jury's verdict on damages under the exception that "not allowing such claims would constitute plain error resulting in a manifest miscarriage of justice." BE&K Constr. Co., 90 F.3d at 1325; Pulla, 72 F.3d at 655. Kemin next argues that technical noncompliance with Rule 50(b) is excusable where the purposes of the Rule have been satisfied under another exception to the general rule.

C.K. Greenwood v. Societe Francaise De, 111 F.3d 1239, 1244-45 (5th Cir. 1997); see also Mathieu v. Gopher News Co., 273 F.3d 769, 776-77 (8th Cir. 2001) (discussing this exception but noting this circuit has never adopted this "broad exception"). Kemin contends that the purposes of this rule have been satisfied, 18 thereby permitting the Court to accept the present motion despite its technical noncompliance. Finally, under another exception Kemin asserts the Court should

¹⁸ The "twin purposes of the rule are to: (1) enable the trial court to examine all of the evidence before submitting the question to the jury; and (2) alert the opposing party to any defect in its case, thereby affording it an opportunity to cure any such defect." Mathieu, 273 F.3d at 776 (citations omitted); see also Pulla, 72 F.3d at 655 n.8. Kemin asserts that the Court effectively examined all evidence regarding damages when it ruled on the damages issue at the close of Kemin's case-in-chief, as PIVEG presented no additional evidence on this issue during its case-in-chief. Kemin further asserts that PIVEG was afforded opportunity to cure the defects in its case on this issue as PIVEG was alerted to those defects on several occasions, including Kemin's motion *in limine* regarding damages testimony and in Kemin's pre-trial brief. Cf. Douglas County Bank & Trust Co. v. United Fin. Inc., 207 F.3d 473, 477-78 (8th Cir. 2000) (refusing to hear movant's Rule 50(b) motion because to do so would deprive the nonmovant opportunity to cure the deficiency in their case).

decide the issue as the basis for the motion "is a purely legal issue," and PIVEG "had notice of the defect and an opportunity to correct the error." Shockley v. Arcan, Inc., 248 F.3d 1349, 1361 (Fed. Cir. 2001) (applying a "rarely utilized exception" under Fourth Circuit law).

The Court will analyze Plaintiffs' contentions regarding damages and willful infringement as presented in its motion. Despite Kemin's failure to comply with the requirements of the Rule, the Court finds the purposes of Rule 50(b) have been met, and PIVEG is not prejudiced by the motion, as PIVEG was well aware of these issues before and during trial. More importantly, however, PIVEG has itself moved for judgment as a matter of law on the damages issue, thereby providing the Court with reason to assess the sufficiency of the damages awarded by the jury.

b. Patent Damages – Reasonable Royalty

Kemin first asks the Court to enter judgment that Kemin is entitled to at least \$159,260 for PIVEG's infringement of the '564 patent.²⁰ Kemin asserts this amount

¹⁹ A damages issue may qualify as a legal issue under this exception where there is no evidence regarding the claimed damages. <u>See Singer v. Dungan</u>, 45 F.3d 823, 829 (4th Cir. 1995) (holding that exception applied to damages claim where "[t]here was simply no evidence of gross profits").

²⁰ As detailed above, infringement of the '714 patent is the subject of another renewed motion brought by Kemin. However, for purposes of this motion regarding damages, the ultimate determination as to the infringement of the '714 patent is not required. The appropriate measure of patent infringement damages is the same whether one considers the infringement of either or both the '564 and '714 patents.

constitutes a 10% reasonable royalty, and that the jury verdict awarding Kemin \$58,775 in damages is not supported by the evidence.

The section on damages in the patent statute provides the following:

Upon finding for the claimant the court shall award the claimant damages adequate to compensate for infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer, together with interest and costs as fixed by the court.

35 U.S.C. § 284. The reasonable royalty is to be determined by a hypothetical negotiation between the patentee and the infringer. Rite-Hite Corp. v. Kelley Co., 56 F.3d 1538, 1554 (Fed. Cir. 1995). "The hypothetical negotiation requires the court to envision the terms of a licensing agreement reached as a result of a supposed meeting between the patentee and infringer at the time the infringement began." Id.

Courts commonly cite to the factors set out in Georgia Pacific Corp. v. United States Plywood Corp. as the considerations taken into account during the hypothetical negotiation and are used to arrive at a reasonable royalty. Georgia Pacific Corp. v. United States Plywood Corp., 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970). The Georgia-Pacific factors include,

- 1. Royalties received by the patentee for licensing the patent-in-suit;
- 2. Royalty rates paid by the licensee for other patents comparable to the patent-in-suit;
- 3. Nature and scope of the license (e.g., exclusive versus nonexclusive or territorial restrictions);

- 4. Patentee's policy and marketing practice to maintain its patent monopoly by refusing to grant licenses, or by granting licenses under special conditions designed to preserve that monopoly;
- 5. Commercial relationship between the patentee and the infringer, such as whether they are competitors in the same territory in the same line of business;
- 6. Value of the invention as a generator of sales of nonpatented items;
- 7. Duration of the patent term of the licensee;
- 8. Established profitability of the product made using the patent, its commercial successful, and its current popularity;
- 9. Advantages of the patented invention over modes or devices, if any, previously used;
- 10. Nature of the patented invention and benefits to users of the invention;
- 11. Extent to which the infringer has made use of the invention;
- 12. The portion of the profit or selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions;
- 13. Portion of the profit that should be credited to the patented invention;
- 14. Opinion testimony of qualified experts; and
- 15. The amount that a licensor and licensee would have agreed to in a negotiation.

Id.

The amount of damages for patent infringement is a question of fact on which the patent owner bears the burden of proof by the preponderance of the evidence standard. BIC Leisure Prods. Inc. v. Windsurfing Int'l, Inc., 1 F.3d 1214, 1217 (Fed. Cir. 1993). "Although this analysis necessarily involves an element of approximation and uncertainty, a trier of fact must have some factual basis for a determination of a reasonable royalty." <u>Uniplay S.A. v. American Elec. Sign Co.</u>, 69 F.3d 512, 517 (Fed. Cir. 1995). A reasonable royalty rate determined by a jury must be supported by relevant record evidence, and the trial court must determine "whether the jury's verdict is against the clear or great weight of the evidence." <u>Id.</u> If the amount awarded by the jury is not within the range encompassed on the evidence in record, the jury verdict may be reversed. See id. at 519 (finding the jury award not within the "range encompassed by the record as a whole"); see also Integra Lifesciences 1. Ltd. v. Merck KGaA, 331 F.3d 860, 869-72 (Fed. Cir. 2003); Oiness v. Walgreen Co., 88 F.3d 1025, 1028 (Fed Cir. 1996); Richardson v. Suzuki Motor Co., Ltd., 868 F.2d 1226, 1241 (Fed. Cir. 1989). The Court will, however, "uphold the jury's damages award unless it is 'grossly excessive or monstrous, clearly not supported by evidence, or based only on speculation or guesswork." Catalina Lighting, Inc. v. <u>Lamps Plus, Inc.</u>, 295 F.3d 1277, 1289 (Fed. Cir. 2002) (quoting <u>Oiness</u>, 88 F.3d at 1031).

Kemin contends that in light of the <u>Georgia-Pacific</u> factors, all of the evidence in the record establishes that Kemin is entitled to a reasonable royalty of at least 10%

of the amount PIVEG actually charged for its purified lutein products. According to Kemin, this amount is not less than \$159,260. Moreover, Kemin argues there is no legally sufficient evidence to support the jury's verdict in awarding Kemin damages in the amount of \$58,775. PIVEG disagrees, contending there is insufficient evidence to award any amount of damages, though assuming, *arguendo*, that the jury's infringement determination was correct, there is more than sufficient evidence to support the jury's damages award.

In support of its contentions, Kemin points primarily to the trial testimony of Carol Ludington, the financial business analyst Kemin produced as its expert witness on damages. Kemin asserts that Ms. Ludington's testimony establishes a reasonable royalty of not less than 10% under the Georgia-Pacific factors. (Tr. 614:21-24; 617:16-22.) Specifically, Ms. Ludington testified concerning the commercial relationship of the parties (Tr. 622:19-623:1; 623:11-25; 625:5-7), the profitability of the each party's purified lutein products (Tr. 625:15-626:8), and PIVEG's pricing of its purified lutein products (626:21-627:6; 627:11-16). Ultimately, Ms. Ludington testified that 10% was the minimum amount of royalty that Kemin could expect in this case, and that this amount would be the same whether it was one or both patents that were being infringed. (Tr. 632:16-633:22; 644:22-645:9.)

In addition to Ms. Ludington's testimony, Kemin introduced documentary evidence that seemed to support Kemin's proposition that PIVEG purposely priced its purified lutein products 10% less than Kemin's comparable products. (Tr. 627:24-

629:1; Ex. 50.) Kemin introduced evidence of the amount of allegedly infringing sales perpetrated by PIVEG, a total amount of at least \$1,592,668. (Tr. 631:4-632:1.) Finally, Kemin asserts that PIVEG failed to present any alternative damages theory and did not even rebut the testimony of Ms. Ludington with expert testimony or document evidence of its own.

PIVEG notes first the concept "[t]hat the jury did not return a verdict precisely equivalent to the amounts provided by [the damages expert's] testimony is immaterial." Children's Broadcasting Corp., 357 F.3d at 866 (citing Sch. Dist. No. 11 v. Sverdrup & Parcel & Assoc., 797 F.2d 651, 654 (8th Cir. 1986)). This is because the jury is "entitled to sort through the evidence presented at trial and to arrive at what it considered to be the damages caused by the conduct it found to be wrongful," and this determination will be sustained if supported by substantial evidence. Id. (citations omitted).

The jury awarded damages after finding PIVEG infringed the process patent, and not the product patent, under the doctrine of equivalents. PIVEG did produce some testimony and documentary evidence that PIVEG changed its manufacturing process for manufacturing purified lutein in November 2003. (Tr. 769:25-771:10; 789:14-17; 894:9-24; Ex. K.) PIVEG argues that Kemin's arguments assume all of PIVEG's sales of purified lutein from 2001 through the summer of 2004 were infringing and proposes that there is no evidence supporting infringement past November 2003.

PIVEG next points out that the jury was presented evidence that Kemin only pays a 1% royalty to the Catholic University of America for the '714 patent (Ex. 5), directly contradicting the testimony that 10% is the floor on a reasonable royalty. Finally, PIVEG contends that it adequately rebutted Kemin's assertion that PIVEG deliberately set its prices at 10% below Kemin's prices. (Tr. 778:21-781:11; 778:5-20.)

PIVEG, in its own renewed motion, argues that there is no evidence to support an award of any amount of damages. PIVEG premises this contention primarily on the sister assertion that there was insufficient evidence of infringement of the '564 patent. As the Court subsequently determines the jury's findings related to infringement of the '564 patent are adequate, the jury was entitled to determine the amount of damage to Kemin.

It is unclear how the jury reached the amount of damages that it ultimately awarded.²¹ However the jury reached the final tally, the Court finds there is sufficient evidence to support the damages awarded. The jury obviously found Kemin was entitled to some amount of damages for the infringement of the '564 patent, though apparently not at the 10% royalty rate requested. The record contains evidence and argument regarding the reasonableness of the suggested royalty rate, the appropriate period of time to be considered, the validity of sales figures, and other potential

²¹ According to the Court's calculation, the \$58,775.00 awarded is just under 5% of PIVEG's total sales from 2001 through November 2003, and approximately 3.7% of PIVEG's total sales from 2001 through summer 2004.

mitigation. The jury correspondingly awarded a lesser amount. The Court does not find the verdict clearly unsupported by the evidence or based only on speculation.

Neither party has provided the Court sufficient reason to overturn this determination post-trial.

c. Willful Infringement

Kemin also contends it is entitled to enhanced damages because PIVEG has willfully infringed the asserted patent claims. Under section 284, willful infringement is a question of fact. 35 U.S.C. § 284. Kemin has the burden of proving by clear and convincing evidence that, based on the totality of the circumstances, the infringement was willful, i.e., that PIVEG lacked a reasonable basis to believe that its product was not within the scope of any valid claim of the patent-in-suit at the time it began its potentially infringing activities. See Transmatic, Inc. v. Gulton Indus., Inc., 53 F.3d 1270, 1279 (Fed. Cir. 1995).

A potential infringer that has actual notice of another's patent rights has an affirmative duty of due care to avoid infringement. See SRI Int'l, Inc. v. Advanced Tech. Labs, Inc., 127 F.3d 1462, 1464 (Fed. Cir. 1997). That duty may require obtaining competent legal advice before engaging in any potentially infringing activity or continuing in such activity. Johns Hopkins Univ. v. Cellpro, Inc., 152 F.3d 1342, 1364 (Fed. Cir. 1998).²²

²² A legal opinion that is untimely, incompetent, or not relied upon by the infringer is insufficient to protect against a finding of willful infringement. <u>Johns Hopkins Univ.</u>, 152 F.3d at 1352, 1364. Such an opinion is competent if it is

In addition to opinion of counsel, courts have also considered the following factors in determining willful infringement: (1) whether the infringer deliberately copied the ideas or design of another; (2) the behavior of the infringer as party to the litigation; (3) the size and financial condition of the infringer; (4) the closeness of the case; (5) the duration of the infringer's misconduct; (6) any remedial action undertaken by the infringer; (7) the infringer's motivation for harm; and (8) whether the infringer made any attempt to conceal its misconduct. See id. at 1352 n.16 (citing Read Corp., 870 F.2d at 827). Ultimately, the willfulness determination requires an examination of the totality of the circumstances. Minn. Mining & Mfg. Co. v. Johnson & Johnson Orthopedics, Inc., 976 F.2d 1559, 1581 (Fed. Cir. 1992).

To support its assertion of willful infringement, Kemin asserts there is clear and convincing evidence that PIVEG lacked a reasonable basis to believe its purified lutein products and/or its process to produce purified lutein were not within the scope of the asserted patents. It is undisputed that PIVEG had actual notice of the '714 and '564 patents. Kemin contends that PIVEG failed to exercise due care to avoid infringement by not obtaining an attorney opinion until after engaging in infringing activities. Further, the opinion was not sought until after this lawsuit was commenced, it came from a Mexican attorney, and the opinion indicated a prior opinion that the '714 patent was valid. (Tr. 843:23-844:9; Ex. 53.)

[&]quot;thorough enough, as combined with other factors, to instill a belief in the infringer that a court might reasonably hold the patent is invalid, not infringed, or unenforceable." Ortho Pharm. Corp. v. Smith, 959 F.2d 936, 944 (Fed. Cir. 1992).

In addition, Kemin asserts the evidence indicates PIVEG deliberately copied Kemin's patented '564 process and then attempted to conceal this misconduct, citing as proof PIVEG's lack of documentation and the concerns of Kemin's expert that reliable information about its process was not provided by PIVEG. (Tr. 786:19-787: 4; 790:8-9; 807:21-22; 808:8-12; 586:25-587:22.) As further proof of this misconduct, Kemin points out that PIVEG admittedly modified its process immediately following Kemin's second inspection of PIVEG's purified lutein process. (Tr. 789:7-9.)

Meanwhile, PIVEG asserts the jury verdict that PIVEG did not willfully infringe either patent is supported by substantial evidence at trial. PIVEG finds it strange that Kemin cites to the opinion of PIVEG's Mexican counsel as demonstrating willfulness, as the attorney opined the '714 patent is not novel, anticipated by prior art, and that PIVEG does not infringe either the '714 or '564 patents. (Tr. 843:12-848:16; Ex. 53.) It was in reliance on this opinion that PIVEG decided to fight Kemin's allegations. (Tr. 843:12-848:16.)

Furthermore, PIVEG contends that it took two years to develop its process for manufacturing purified lutein, much longer than would be necessary to "copy" Kemin's patented process (Tr. 775:1-7; 776:9-777:8; 854:23-855:22; 871:14-872:25; 873:1-9), and that the testimony of PIVEG's principals is sufficient to support the jury finding of no willful infringement. For the Court to reject this evidence would require a determination of the credibility of witnesses, which is beyond the scope of the Court's review on a motion for judgment as a matter of law. Shepard, 303 F. Supp. 2d at 1007 (citing Garcia, 348 F.3d at 727).

The Court finds there is sufficient evidence to support the jury's finding that PIVEG did not willfully infringe either of the patents-in-suit. The Court is not to make credibility determinations, and ultimately, Kemin's arguments in favor of a finding of willful infringement are based on testimony and speculation from the record-keeping practices of a foreign corporation. The jury did not deem this sufficient, and the Court will not upset its finding on willful infringement.

d. Attorneys' Fees

In exceptional cases, the Court may award reasonable attorneys' fees to the prevailing party. 35 U.S.C. § 285. The Court must consider the totality of the circumstances in determining whether a particular case is "exceptional." See Kaufman Co. v. Lantech, Inc., 807 F.2d 970, 978-79 (Fed. Cir. 1986). In most cases, a finding of willful infringement "is a sufficient basis for finding a case exceptional." L.A. Gear, Inc. v. Thom McAn Shoe Co., 988 F.2d 1117, 1128 (Fed. Cir. 1993); see also S.C. Johnson & Son, Inc. v. Carter-Wallace, Inc., 781 F.2d 198, 201 (Fed. Cir. 1986) (holding it necessary for a district court to explain why a case is not exceptional when an express finding of willful infringement has been made).

Kemin asserts this case is exceptional for two reasons: (1) PIVEG's willful infringement of the asserted patents; and (2) PIVEG's successful efforts to obfuscate its process for manufacturing its purified lutein products, resulting in forced and needless expense to Kemin. At a minimum, Kemin argues that it should be awarded reasonable attorneys' fees associated with its efforts to discover PIVEG's actual process for producing purified lutein.

Because the Court has determined the jury's finding that PIVEG did not engage in willful infringement will stand, the only basis left for the Court to find this case is exceptional rests on PIVEG's lack of documentation of its process and the difficulty Kemin encountered in discovering the actual process used by PIVEG in producing its purified lutein products. These same issues were previously the subject of an order under 35 U.S.C. § 295, wherein the Court determined section 295 applied. As a result, the burden at trial switched to PIVEG to prove noninfringement of the '564 patent. The Court finds the result under section 295 sufficient to remedy the difficulties Kemin encountered. The Court declines to find this an exceptional case warranting an award of attorneys' fees to Kemin.

Thus, the Court must deny Kemin's third post-trial motion. There was sufficient evidence to support the jury's findings on the issues of damages and willful infringement such that the Court will not rule contrary to nor adjust the jury's damages award and finding of no willful infringement.

C. Defendant's Renewed Motion for Judgment as a Matter of Law

PIVEG has renewed, on multiple issues, the motion for judgment as a matter of law that it made at trial. First, PIVEG moves for judgment as a matter of law as to invalidity of the '714 patent, arguing that it is both anticipated and obvious in light of prior art. Second, PIVEG contends the Court should find the '564 patent invalid due to public use under 35 U.S.C. section 102(B). Third and fourth, PIVEG seeks judgment as a matter of law as to Kemin's inequitable conduct in obtaining the '564 patent

and the '714 patent.²³ Fifth, PIVEG moves for judgment as a matter of law that its process does not infringe the '564 patent under the doctrine of equivalents. Sixth, PIVEG asserts Kemin failed to provide sufficient proof of damages.²⁴

1. Invalidity of the '714 Patent

PIVEG asserts that the '714 patent should be held invalid because it was anticipated by an article qualifying as prior art. PIVEG also contends the '714 patent should be found invalid because it is obvious in light of prior art. Invalidity does not become moot because of a finding of noninfringement. See Cardinal Chem. Co. v. Morton Int'l, Inc., 508 U.S. 83, 100 (1993); SmithKline Beecham Corp. v. Apotex Corp., 365 F.3d 1306, 1322-23 (Fed. Cir. 2004) (Gajarsa, concurring).

a. Anticipation

A patent is presumed to be valid. 35 U.S.C. § 282. This statutory presumption places the burden on a challenging party to prove factual issues related to the validity of the challenged patents. See Kalman v. Kimberly-Clark Corp., 713 F.2d 760, 773 n.3 (Fed. Cir. 1983), overruled on other grounds, SRI Int'l, Inc. v. Matsushita Elec. Corp., 775 F.2d 1107, 1125 (Fed. Cir. 1985) (overruling Kalman on

²³ The issue of inequitable conduct as related to the '714 patent is previously discussed in the analysis of Plaintiffs' motion for judgment that the '714 patent is enforceable, <u>supra</u>, at section B.1. This issue will not be revisited under PIVEG's motion.

²⁴ Again, the issue of damages is discussed in the analysis of Plaintiffs' renewed motion for judgment as a matter of law on damages, <u>supra</u>, at section B.3. This issue will not be revisited under PIVEG's motion.

the issue of applying reverse doctrine of equivalents)). Thus, to overcome the presumption of validity, PIVEG must prove facts supporting a determination of invalidity of Kemin's patent by clear and convincing evidence. Schumer v. Lab. Computer Sys., Inc., 308 F.3d 1304, 1315 (Fed. Cir. 2002) (citations omitted); see also Transmatic, Inc., 53 F.3d at 1274-75. PIVEG asserts the '714 patent is invalid by anticipation, and whether a patent is anticipated is a question of fact. Rockwell Int'l Corp. v. United States, 147 F.3d 1358, 1363 (Fed. Cir. 1998).

Anticipation prevents patentees from claiming that which is covered by prior art. See Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1378 (Fed. Cir. 2001) (providing "that which would literally infringe if later anticipates if earlier"); Atlas Powder Co. v. Ireco, Inc., 190 F.3d 1342, 1346 (Fed. Cir. 1999) (stating that "if granting patent protection on the disputed claim would allow the patentee to exclude the public from practicing the prior art, then that claim is anticipated"). "Anticipation under [35 U.S.C.] § 102(a) requires that the identical invention that is claimed was previously known to others and thus is not new." Continental Can Co. USA v. Monsanto Co., 948 F.2d 1264, 1267 (Fed. Cir. 1991).

A claim is invalid due to anticipation only when a prior art reference discloses all of the limitations of the claim. 35 U.S.C. § 102(a); see also Merck & Co. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1372 (Fed. Cir. 2003) (finding that an anticipating reference must describe all of the elements and limitations of the claim in a single reference); Schering Corp. v. Geneva Pharms., Inc., 339 F.3d 1373, 1379

(Fed. Cir. 2003) (finding that "a prior art reference which expressly or inherently contains each and every limitation of the claimed subject matter anticipates and invalidates").

However, the anticipatory reference need not expressly disclose every feature of the claimed invention so long as the missing limitations are inherent in the single reference. Schering Corp., 339 F.3d at 1377 (citing Continental Can Co., 948 F.2d at 1268). For a reference to be anticipatory when it is silent about an asserted inherent characteristic, a court may go to extrinsic evidence to fill such gaps in the reference; however, "[s]uch evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill in the art." Continental Can Co., 948 F.2d at 1268.

"Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." In re Olerich, 666 F.2d 578, 581 (CCPA 1981) (quoting Hansgirg v. Kemmer, 102 F.2d 212, 214 (CCPA 1939)) (emphasis added). Instead, "[inherent] possession is effected if one of ordinary skill in the art could have combined the publication's description of the invention with his own knowledge to make the claimed invention." In re Donohue, 766 F.2d 531, 533 (Fed. Cir. 1985).

Furthermore, to qualify as anticipating, the prior art must enable one of skill in the field of the invention to make and use the claimed invention. <u>Teva Pharms. USA</u>, <u>Inc.</u>, 347 F.3d at 1372. Thus, a claimed invention is not anticipated by a prior art reference if the allegedly anticipatory disclosures are not enabled. <u>Elan Pharms., Inc. v. Mayo Found. for Med. Educ. & Research</u>, 346 F.3d 1051, 1054 (Fed. Cir. 2003); <u>Amgen Inc. v. Hoechst Marion Roussel, Inc.</u>, 314 F.3d 1313, 1354 (Fed. Cir. 2003).

"Enablement requires that 'the prior art reference must teach one of ordinary skill in the art to make or carry out the claimed invention without undue experimentation." Elan Pharms., Inc., 346 F.3d at 1054 (quoting Minn. Mining & Mfg. Co. v. Chemque, Inc., 303 F.3d 1294,1301 (Fed. Cir. 2002), and citing Enzo Biochem, Inc. v. Calgene, Inc., 188 F.3d 1362, 1369 (Fed. Cir. 1999)). In other words, "anticipation does not require actual performance of suggestions in a disclosure. Rather, anticipation only requires that those suggestions be enabling to one of skill in the art." Ben Venue Labs., Inc., 246 F.3d at 1379 ("[A]nticipation does not require the actual creation or reduction to practice of the prior art subject matter.") (citing In re Donohue, 766 F.2d at 533); see also Schering Corp., 339 F.3d at 1377.

PIVEG asserts the *Poultry Science* article (Ex. 54) anticipates claim 1 of the '714 patent because it discloses every element thereof, either expressly or inherently. PIVEG bases this assertion on the testimony of Jose Pichardo, a chemical engineer

employed by PIVEG, who claimed he was able to practice the method disclosed in the *Poultry Science* article and achieve lutein of greater than about 90% pure, significantly less than 10% other carotenoids, and with no traces of toxic chemicals. (Tr. 896:5-9; 898:7-899:21; 900:12-21; 902:19-22; 926:13-16; 928:13-16.) He testified that he was able to accomplish this with only slight modifications to the *Poultry Science* method, all of which would be within the knowledge of one skilled in the art (Tr. 902:2-903:4; 898:17-22), a claim backed by the testimony of PIVEG's expert Dr. Daignault. (Tr. 970:3-13; 975:7-976:5; 1014:12-1015:3.)

Kemin asserts the jury correctly found the *Poultry Science* article does not anticipate the '714 patent. Kemin argues that the disclosed method in the article does not disclose each of the limitations of the '714 patent, including the requirement that the resulting lutein crystals contain no traces of toxic chemicals. (Tr. 164:22-165:3; 370:13-17; 975:7-22.) Specifically, Kemin strongly argues that the use of toluene makes it impossible for the *Poultry Science* method to meet this third limitation due to the degree of difficulty in removing it without damaging the end product. (Tr. 166:6-19; 168:11-20; 362:2-363:6; 365:15-367:20; 901:21-902:3; 912:5-12; 1015:13-17; 1015:22-1016:10.)

Furthermore, Kemin contends the evidence indicates the *Poultry Science* method did not work as claimed, that is, it is not enabled (Tr. 227:15-228:1; 228:15-22; 361:13-20; 956:23-957:8; 959:3-960:11; 1013:8-11; Ex. 60; 61; 62), and that Mr.

Pichardo only was successful after modifying the procedure disclosed.²⁵ (Tr. 912:2-4; 912:24-913:1.) Kemin maintains that PIVEG failed to present sufficient evidence that the *Poultry Science* method actually produced a composition meeting the limitations of the '714 patent. (Tr. 167:3-25; 353:3-354:10; 397:4-23; 980:20-25; Ex. 10.) Therefore, Kemin contends PIVEG failed to overcome the presumption of validity.

The Court finds insufficient evidence to prove anticipation under the clear and convincing standard. The jury found no anticipation after hearing the evidence presented by both parties. The jury had the *Poultry Science* article and was able to analyze it and compare it to the claims of the '714 patent. The Court finds sufficient evidence to support the jury's conclusion that the '714 patent was not anticipated. Accordingly, the Court must deny PIVEG's motion on this issue.

b. Obviousness

PIVEG next asserts invalidity of the '714 patent due to obviousness. Under this rule, a claim is invalid if the invention "would have been obvious at the time the invention was made to a person having ordinary skill in the art to which [the invention] pertains." 35 U.S.C. § 103(a). As explained by the Federal Circuit,

Obviousness is ultimately a question of law that rests on underlying factual inquiries including: (1) the scope and content of the prior art;

²⁵ Moreover, Mr. Pichardo kept no records of the procedure as modified and was unable to testify as to exactly what changes he made. (Tr. 904:1-23.)

(2) the level of ordinary skill in the art; (3) the differences between the claimed invention and the prior art; and (4) objective considerations of nonobviousness.

<u>Advanced Display Sys., Inc. v. Kent State Univ.</u>, 212 F.3d 1272, 1284-85 (Fed. Cir. 2000) (citing <u>Graham v. John Deere Co.</u>, 383 U.S. 1, 17-18 (1966)).

Additional factors to consider include "objective considerations such as commercial success, long felt need, failure of others, and copying." Heidelberger Druckmaschinen v. Hantscho Commercial Prods., Inc., 21 F.3d 1068, 1071 (Fed. Cir. 1994) (citing Graham, 383 U.S. at 17). These objective criteria must always be considered and given whatever weight is warranted by the evidence presented. Knoll Pharm. Co. v. Teva Pharms. USA, Inc., 367 F.3d 1381, 1385 (Fed. Cir. 2004) (reversing summary judgment because district court failed to view evidence in light most favorable to patentee and failed to consider "failure of others" in finding a solution to the problem); see also Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1572 (Fed. Cir. 1996).

In making a determination of obviousness, the claims must be considered in their entirety, and the invention is to be considered as a whole, all without the benefit of hindsight. Rockwell Int'l Corp., 147 F.3d at 1364. If a combination of references is used to establish obviousness, there must be some motivation to combine them.

Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 727-28 (Fed. Cir. 2002). This

motivation may be evidenced by the nature of the problem solved or the knowledge of one with ordinary skill in the art. <u>Id.</u>

"Throughout the obviousness determination, a patent retains its statutory presumption of validity, see 35 U.S.C. § 282, and the movant retains the burden to show invalidity of the claims by clear and convincing evidence as to underlying facts."

Rockwell Int'l Corp., 147 F.3d at 1364; see also Knoll Pharm. Co., 367 F.3d at 1384 (finding that in motion for summary judgment, the movant must prove by clear and convincing evidence that each challenged claim cannot reasonably be held to be nonobvious). The movant has the burden of proving that combining the references would suggest to one skilled in the art how to achieve a missing limitation with a reasonable likelihood of success. See Rockwell Int'l Corp., 147 F.3d at 1365.

PIVEG asserts that the *Poultry Science* article combined with ordinary skill in the art makes the '714 patent obvious. PIVEG argues that the *Poultry Science* article discloses to the public purified lutein,²⁶ and that only the removal of toxic chemicals from that composition is necessary to meet every limitation of claim 1 of the '714 patent. PIVEG maintains it presented ample evidence at trial that removal of toxic chemicals was basic knowledge for one of ordinary skill in the art (Tr. 902:2-903:4;

²⁶ "Even if a reference discloses an inoperative device, it is prior art for all that it teaches." <u>Beckman Instruments, Inc. v. LKP Produkter AB</u>, 892 F.2d 1547, 1551 (Fed. Cir. 1989).

898:17-22; 970:3-13; 975:7-976:5; 1014:12-1015:3), and that one of ordinary skill in the art would be motivated to remove all nonlutein chemicals, especially toxic chemicals, in order to make the lutein composition as pure as possible given the article discloses purified lutein as an analytical standard. (Ex. 54.)

PIVEG also attempts to rebut Kemin's assertions of nonobviousness. PIVEG contends the evidence demonstrates the commercial success of Kemin's purified lutein products was due in large part to marketing (Tr. 626:16-18), and that there was no long felt need for the product. (Tr. 128:2-17.) PIVEG further argues that Kemin's arguments relating to secondary considerations of nonobviousness were not compelling enough to overcome the prima facie case of obviousness of the *Poultry* Science article and the knowledge of one skilled in the art. See B.F. Goodrich Co. v. Aircraft Braking Sys. Corp., 72 F.3d 1577, 1583 (Fed. Cir. 1996) ("Considering the minor difference between the claimed invention and the teachings of [the prior art], the secondary considerations were not sufficiently compelling."); Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1572 (Fed. Cir. 1988) (finding the strong prima facie case of obviousness proven by the accused infringer could not be overcome by particular objective considerations advanced by the patentee); cf. Arkie Lures, Inc. v. Gene Larew Tackle, Inc., 119 F.3d 953, 958 (Fed. Cir. 1997) (finding

the proposition that the objective considerations are secondary "suggests a misperception of the role of these considerations").

Kemin counters by arguing the *Poultry Science* article in combination with ordinary skill in the art fails to disclose the limitations of claim 1 of the '714 patent. Specifically, Kemin maintains PIVEG failed to show by clear and convincing evidence that the *Poultry Science* article would suggest to one of ordinary skill in the art how to achieve a composition with no traces of toxic chemicals with a reasonable likelihood of success. See Rockwell Int'l Corp., 147 F.3d at 1365. Kemin argues as proof that analytical standards of purified lutein crystals are produced using all sorts of solvents and could not be consumed by humans. (Tr. 217:13-21; 218:24-219:7.)

Kemin also contends PIVEG ignores the substantial evidence of secondary indications of nonobviousness supporting the validity of the '714 patent that was presented at trial. Kemin maintains the record is replete with evidence of the commercial success²⁷ of the '714 patent (Tr. 239:22-25; 246:14-247:5; Ex. AY; AZ; BA; BB; BC;

²⁷ Evidence of sales is particularly demonstrative of commercial success. <u>See Tec Air, Inc. v. Denso Mfg. Mich. Inc.</u>, 192 F.3d 1353,1360-61 (Fed. Cir. 1999); <u>Gambro Lundia AB v. Baxter Healthcare Corp.</u>, 110 F.3d 1573, 1580 (Fed. Cir. 1987); <u>J.T. Eaton & Co. v. Atlantic Paste & Glue Co.</u>, 106 F.3d 1563, 1566, 1571 (Fed. Cir. 1997); <u>Johnson & Johnson Orthopedics, Inc.</u>, 976 F.2d at 1575; <u>see also Winner Int'l Royalty Corp. v. Wang</u>, 202 F.3d 1340, 1350 (Fed. Cir. 2000) (finding that a survey demonstrated customers purchased the invention because of the patented feature established commercial success sufficient to overcome the other Graham factors).

BD), a factor in favor of a finding of nonobviousness. Kemin further contends it presented sufficient evidence of a long-felt need for the invention disclosed (Tr. 127:14-128:18; 130:18-131:15; 132:3-17; 773:23-774:1; 783:17-784:5; 784:6-785:15; Ex. 1, at col. 2, ll. 61-65 and col. 3, ll. 5-8), the failure of others to produce purified lutein (Tr. 217:22-218:6; 774:13-775:7; 1068:18-1069:10), and that PIVEG copied the '714 patent (Tr. 882:2-9; 776:16-20), all of which support a finding of nonobviousness.

See Advanced Display Sys., Inc., 212 F.3d at 1285-86; Johnson & Johnson Orthopedics, Inc., 976 F.2d at 1574-75.

The jury found that PIVEG failed to prove by clear and convincing evidence that the '714 patent is invalid due to obviousness. The Court finds the jury was presented with substantial evidence to support that conclusion. Accordingly, the Court must deny PIVEG's motion for judgment as a matter of law on this issue.

2. Invalidity of the '564 Patent

PIVEG asserts that claim 1 of the '564 patent is invalid due to public use under 35 U.S.C. section 102(B). The Patent Act provides that "[a] person shall be entitled to a patent unless . . . the invention was . . . in public use or on sale in this country, more than one year prior to the date of the application for the patent in the United States." 35 U.S.C. § 102(b). "Whether a patent is invalid due to public use under § 102(b) is a question of law based on underlying questions of fact." SmithKline

Beecham Corp., 365 F.3d at 1316 (citations omitted). Even a single sale or offer to sell, or a single public use, that takes place outside the one-year period prior to filing the patent application is sufficient to invoke this section. A.B. Chance Co. v. RTE Corp., 854 F.2d 1307, 1311 (Fed. Cir. 1988).

PIVEG asserts it is undisputed that Kemin used propylene glycol to saponify oleoresin and produce lutein crystals, and that it was doing so years before Kemin applied for the '564 patent which purported to introduce this process. (Tr. 208:19-23; 301:2-15; 509:12-22; 297:20-24; 298:11-16; 512:18-513:3.) See Woodland Trust v. Flowertree Nursery, Inc., 47 U.S.P.Q.2d 1363, 1365-66 (Fed. Cir. 1998) (finding "an inventor's own prior commercial use, albeit kept secret, may constitute a public use or sale under § 102(b), barring him from obtaining the patent"); cf. SmithKline Beecham Corp., 365 F.3d at 1316-17 (holding that a person other than the inventor must use the claimed invention to qualify as a public use). There is even evidence that Kemin provided a composition produced by this method to the public (Tr. 298:3-7) and used it as the starting material for the '714 patent. (Tr. 297:25-298:2.)

Others in the poultry pigment industry were also using propylene glycol in saponification (Tr. 421:10-422:17; 1058:19-1059:11), and the process produced lutein crystals. (Tr. 515:21-516:6; 1065:17-1066:6.) According to PIVEG, this is significant even if they did not recognize the function of propylene glycol in saponification. Atlas

<u>Powder</u>, 190 F.3d at 1348 ("The public remains free to make, use, or sell prior art compositions or process, regardless of whether or not they understand their complete makeup or the underlying scientific principles which allow them to operate.").

Further, PIVEG asserts that the scope of patentable subject matter does not include discoveries of natural phenomena because "[s]uch discoveries are 'manifestations of . . . nature, free to all men and reserved exclusively to none.'" <u>Diamond v. Chakrabarty</u>, 447 U.S. 303, 309 (1980) (quoting <u>Funk Bros. Seed Co. v. Kalo Inoculant Co.</u>, 333 U.S. 127, 130 (1948)). PIVEG asserts the prior use of both Kemin and others invalidates the '564 patent under section 102(b). PIVEG also contends that the jury's decision was contrary to law to the extent it believed claim 1 of the '564 patent was valid because it was drawn to the scientific discovery of producing large crystals.

Kemin urges the Court to deny PIVEG's motion on this issue as it is based on a newly asserted, post verdict anticipation theory, a defense never raised at trial. The Federal Rules state that a motion for judgment as a matter of law made before submission of the case to the jury "shall specify the judgment sought and the law and the facts on which the moving party is entitled to judgment." Fed. R. Civ. P. 50(a). Adherence to these requirements is mandatory. Walsh v. Nat'l Computer Sys., Inc., 332 F.3d 1150, 1158 (8th Cir. 2003). The purpose of this Rule is to afford the

opposing party an opportunity to cure the defects in proof that might otherwise preclude the party from taking the case to the jury. <u>Id.</u>; <u>Duro-Last, Inc.</u>, 321 F.3d at 1105. "If specificity is lacking, judgment as a matter of law may [not] be granted . . . unless that result is 'required to prevent manifest injustice.'" <u>Walsh</u>, 332 F.3d at 1158 (quoting <u>Cruz v. Local Union No. 3 of the Int'l Bhd. of Elec. Workers</u>, 34 F.3d 1148, 1155 (2d Cir. 1994)).

Exact technical precision is not necessary in stating the grounds for a Rule 50 motion as long as the Court is aware of the movant's position. Walsh, 332 F.3d at 1158 (quoting Rockport Pharm., Inc. v. Digital Simplistics, Inc., 53 F.3d 195, 197-98 (8th Cir. 1995)). Indeed, "[i]f colloquy between counsel and the trial court fleshes out the motion, it may provide the opposing party with the requisite notice." Conseco Fin. Serv. Corp. v. N. American Mortgage Co., 381 F.3d 811, 821 (8th Cir. 2004) (citations omitted).

If the motion is denied during trial, the Federal Rules allow the party to renew the motion following the verdict. See Fed. R. Civ. P. 50(b). This post-trial motion for judgment as a matter of law may not, however, "advance additional grounds that were not raised in the pre-verdict motion." Walsh, 332 F.3d at 1158 (quoting Rockport Pharm., Inc., 53 F.3d at 197); Duro-Last, Inc., 321 F.3d at 1105-06.

Kemin maintains that PIVEG moved for directed verdict at the close of Plaintiffs' case on several issues, specifically, infringement, damages, and inequitable conduct, but not invalidity of the '564 patent, much less invalidity on the basis of prior public use. (Tr. 725:6-24.) At the close of all the evidence, PIVEG again sought a directed verdict on the grounds previously urged, i.e., inequitable conduct, anticipation, and obviousness. (Tr. 1164:16-24.) PIVEG had not previously moved for judgment as a matter of law on the basis of anticipation with respect to the '564 patent, and Kemin asserts the bare assertion of anticipation in its second in-trial motion failed to provide the specifics required of Rule 50(a). See, e.g., Kinzenbaw v. Deere & Co., 741 F.2d 383, 387-88 (Fed. Cir. 1984) (finding general request for directed verdict on invalidity defenses that did not specifically refer to prior public use resulted in a waiver of the right to raise this issue in post-trial motions or on appeal); see also Duro-Last, Inc., 321 F.3d at 1107 (holding pre-verdict motion regarding anticipation by prior use did not support post-verdict motion on obviousness); <u>Union</u>

²⁸ Though PIVEG did argue invalidity due to anticipation related to the '714 patent, there was no mention of this contention related to the '564 patent in PIVEG's pre-trial brief or during the trial. Furthermore, PIVEG did not request this issue be posed to the jury on the jury verdict form. PIVEG did always assert, however, invalidity due to obviousness as related to the '564 patent. PIVEG did also request jury instructions related to prior use be included on the final instructions provided to the jury.

Carbide Chems. & Plastics Tech. Corp. v. Shell Oil Co., 308 F.3d 1167, 1188 (Fed. Cir. 2002) (same).

Even if the Court considers PIVEG's motion on this issue, Kemin contends PIVEG failed to present sufficient evidence for a reasonable juror to conclude that prior use of propylene glycol would have been anticipatory. Kemin argues PIVEG has identified no evidence to suggest the prior use of propylene glycol in the poultry pigment industry would have satisfied all the limitations of the '564 patent. See Teva Pharms. USA, Inc., 347 F.3d at 1372 (recognizing that anticipation requires the disclosure of all limitations of the claimed invention). Specifically, Kemin contends the evidence does not show the use of propylene glycol in the proportions claimed by the '564 patent, or even that propylene glycol was used to produce lutein crystals. (Tr. 1067:18-1068:6; 1068:18-1069:7.) Furthermore, Kemin argues that unappreciated and unknowing use of propylene glycol by others cannot serve as a basis to invalidate the '564 patent, see <u>Tilgham v. Proctor</u>, 102 U.S. 707, 711-12 (1880); Torpham, Inc. v. Ranbaxy Pharm., Inc., 336 F.3d 1322, 1327 (Fed. Cir. 2003), and that the '564 patent process is not a "natural phenomena" as PIVEG suggests.

The Court finds PIVEG did not properly preserve this issue; thus, it is improper for PIVEG to now assert the '564 patent was anticipated by prior use.

PIVEG was not sufficiently explicit in its pre-verdict motions to preserve this issue.

In fact, never before the present post-trial flurry of filings did PIVEG assert the defense that the '564 patent was invalid by virtue of prior use under section 102(b); and the fact that anticipation and obviousness are related does not save PIVEG's claim, as the issues are not "inextricably intertwined." Rockport Pharm., Inc., 53 F.3d at 198.

Despite that failure, the Court did consider Plaintiffs' contentions on this issue. The Court finds PIVEG has not provided substantial evidence such that a reasonable jury would have found anticipation by prior use as related to the '564 patent. Accordingly, this portion of PIVEG's renewed motion for judgment as a matter of law will be denied as procedurally deficient and in the alternative, as inadequate on the merits.

3. Inequitable Conduct in Obtaining the '564 Patent²⁹

PIVEG asserts that the '564 patent should be held unenforceable as a result of Kemin's inequitable conduct in obtaining the patent. Specifically, PIVEG alleges that Kemin failed to disclose highly material information related to the use of propylene glycol by Kemin and others prior to the '564 patent application. PIVEG argues this nondisclosure was done with an intent to deceive the Patent Office.

²⁹ The legal standard the Court follows in determining whether a patent is unenforceable based on inequitable conduct is delineated by the Court in section B.1, <u>supra</u>, and will not be set forth again here. The Court will proceed to analyze the parties' contentions on this issue as they relate to the '564 patent.

The Patent Examiner recognized that propylene glycol is essential to the process of the '564 patent (Ex. 4, at 60-61), as did the Court in its Order on Claim Construction. Kemin I, 301 F. Supp. 2d at 993-94, 996. Thus, PIVEG asserts that Kemin's prior use of propylene glycol was material and was not cumulative of other prior art. It is uncontroverted that Kemin's prior use of propylene glycol was not disclosed to the Patent Office, and PIVEG argues there is substantial evidence from which the jury could infer intent. (Tr. 421:10-422:17; Ex. 2.)

Kemin submits there is no clear and convincing evidence of inequitable conduct with respect to the '564 patent. The issues of materiality and intent were submitted to the jury as special interrogatories, and the jury found in the negative on both questions. Kemin argues the jury reached the proper conclusions on these questions, as PIVEG failed to establish that Kemin's prior use of propylene glycol in its manufacturing of poultry pigments was material and that Kemin intended to deceive the Patent Office by not disclosing that prior usage. (See Tr. 442:13-443:1; 464:18-465:5; 421:2-16; 436:15-437:24; 438:23-439:16; 506:10-507:3; 286:13-24.)

The Court finds there is a dearth of evidence to support PIVEG's arguments of inequitable conduct related to the '564 patent. Accordingly, the Court finds substantial evidence supports the jury conclusions on the special interrogatories related to inequitable conduct in obtaining the '564 patent, i.e, Kemin did not fail to disclose

material information of its prior use of propylene glycol with an intent to deceive the Patent Office. In finding no materiality or intent, the Court need not proceed to the balancing portion of the inequitable conduct test. The Court must, therefore, deny PIVEG's motion for judgment as a matter of law on this issue.

4. Infringement of the '564 Patent Under the Doctrine of Equivalents

PIVEG contends that its process does not infringe the '564 patent under the doctrine of equivalents. As previously noted, this Court has found propylene glycol essential to the process claimed in the '564 patent.³⁰ PIVEG asserts that a finding of equivalence would vitiate the propylene glycol limitation of claim 1 of the '564 patent, a result not allowed by law. See Warner-Jenkinson Co., 520 U.S. at 39 n.8 (1997) (stating "if a theory of equivalence would entirely vitiate a particular claim element, partial or complete judgment should be rendered by the court, as there would be no further *material* issue for the jury to resolve"); Novartis Pharm. Corp. v. Eon Labs Mfg., Inc., 363 F.3d 1306, 1312 (Fed. Cir. 2004) (finding no reasonable juror could find equivalence where equivalence would read a limitation out of the claims); see,

³⁰ "Where a patent claim recites a specific function for an element of the claim and the written description reiterates the importance of that particular function, a patentee may not later argue, during the course of litigation, that an accused device lacking that functionality is equivalent. . . . To hold otherwise would be to frustrate the important definitional and public-notice functions of the statutory claiming requirement." <u>Sage Prods.</u>, <u>Inc. v. Devon Indus.</u>, 126 F.3d 1420, 1429-30 (Fed. Cir. 1997) (internal citations omitted).

<u>e.g.</u>, <u>Durel Corp. v. Osram Sylvania, Inc.</u>, 256 F.3d 1298, 1305 (Fed. Cir. 2001) (citing <u>Tronzo v. Biomet, Inc.</u>, 156 F.3d 1154, 1160 (Fed. Cir. 1998)).

PIVEG contends that a finding of equivalence in a process where propylene glycol is not used in the saponification reaction to form crystals would completely vitiate a claim limitation of the '564 patent. PIVEG maintains the evidence at trial was clear that PIVEG used propylene glycol in its process only after saponification and after crystals are formed. Furthermore, PIVEG contends the evidence demonstrates that beginning in November 2003, PIVEG quit using propylene glycol in its process for any purpose whatsoever. PIVEG also asserts the range of equivalents of claim 1 of the '564 patent is further limited by Kemin's prior use of propylene glycol. See Wilson Sporting Goods Co. v. David Geoffrey & Assocs., 904 F.2d 677, 684 (Fed. Cir. 1990) (stating "a patentee should not be able to obtain, under the doctrine of equivalents, coverage which he could not lawfully have obtained from the PTO by literal claims") (citing Graver Tank & Mfg. Co. v. Linde Air Prods. Co., 339 U.S. 605, 608 (1950)).

As a result of this Court's prior ruling on the application of 35 U.S.C. § 295, PIVEG had the burden of proving noninfringement of the '564 patent. Kemin asserts that PIVEG did not meet its burden, and that substantial evidence exists to support the jury's finding that PIVEG infringed the '564 patent under the doctrine of equivalents.

First and foremost, PIVEG provided no reliable documentary evidence of its purported process for producing purified lutein (Tr. 533:23-534:13; 586:25-587:7), and there were contradictory procedures and results in the test runs made in anticipation of trial as compared to the process disclosed. (Tr. 581:24-582:6; 583:2-16; 583:12-584:3; 584:15-585:13; 579:4-13; 580:22-581:8; 586:9-20; 744:4-11; 879:23-880:6; 881:17-20; 926:14-16; 1126:12-1128:5; Ex. 9; D; AB.) Kemin further argues there is evidence that in PIVEG's actual process, propylene glycol is used in saponification to create crystals. (Tr. 918:10-919:1; 919:11-16.)

Thus, Kemin asserts that PIVEG did not prove that its lutein purification process does not infringe the '564 patent under the doctrine of equivalents as it failed to even adequately disclose the actual process used. (Tr. 587:8-588:11; 1147:15-24.) Moreover, Kemin contends that while PIVEG has asserted that since November 2003 it altered its process so as to not use propylene glycol at all, its evidence is limited to uncorroborated testimony of Mr. Espinoza, PIVEG's President. Even PIVEG's own expert could not corroborate PIVEG's modified process. (Tr. 1142:17-19.)

The Court finds substantial evidence exists to support the jury determination that PIVEG's process infringes the '564 patent under the doctrine of equivalents.

PIVEG makes broad, sweeping contentions about the process it uses in producing its purified lutein products but does not adequately support those assertions any more in

post-trial arguments than they did for the jury. Fundamentally, the jury could have disbelieved the claims of PIVEG on this issue. Based on the evidence of the product created by PIVEG and the analyses of that product, it was reasonable for the jury to draw conclusions as to the *actual* process used by PIVEG and then find that process infringes the patent-in-suit. Accordingly, the Court must uphold the jury determination of equivalent infringement of the '564 patent.

CONCLUSION

The jury in this case confronted complicated factual issues surrounding complex technology, dueling experts, and pivotal credibility determinations. These are all matters uniquely within the province of the jury. At bottom, the jury rendered a verdict reflecting consistent failure of the parties to sustain their respective burdens of proof. It is upon that backdrop that the Court has considered the post-trial motions.

For the foregoing reasons, the Defendant's renewed motion for judgment as a matter of law (Clerk's No. 290) must be **denied** on all of the issues asserted. Plaintiffs' renewed motions for judgment as a matter of law on the issues of infringement of the '714 patent (Clerk's No. 292) and damages and willful infringement (Clerk's No. 293) must be **denied**. Plaintiffs' motion for judgment as a matter of law that the '714 patent is enforceable (Clerk's No. 291) is **granted**. The Court finds no

inequitable conduct sufficient to rule the '714 patent unenforceable. On the record and under the circumstances of this case, the Court finds the '714 patent enforceable.

IT IS SO ORDERED.

Dated this 8th day of February, 2005.

TAMES E. GRITZNER, TUDGE/ UNITED STATES DISTRICT (DUIK